

Recovery Plan Action Status**Plan Name: Recovery Plan for the Applegate's Milk-vetch (Astragalus applegatei)****Plan Status: Final****Plan Date: 10-Apr-98****Lead Agency: USFWS****Lead Office: Klamath Falls Fish And Wildlife Office****(541)****885-8481)**

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Applegate's milk-vetch (Astragalus applegatei)	1	1.11	Review aerial photos.	Ongoing Current	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Research: Population Surveys	Contract	Work was initiated in 2000. Results were not promising because of the level of resolution of plant community data. New efforts were made in 2007 and it is anticipated that the final results would be available in 2011.

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Applegate's milk-vetch (Astragalus applegatei)	1	1.12	Prioritize search areas.	Ongoing Current	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Research: Population Surveys	Contract	In 2000, aerial photos and GIS coverage for plants communities were examined by Steve Geisler (ODA) to help prioritize search areas. Soil data was updated in 1999 in a report prepared by the TNC. GIS-Plant community data was available from layers produced by Humbolt SU. Some searching was done using this information and the results were not promising. This suggests that aerial photos, soil survey info and plant community data are not currently helpful because they lack adequate resolution. If the data were improved with greater resolution that might make searching more efficient. As part of the FERC relicensing process PacifiCorp had plant surveys done along the Klamath River from the outlet of Link River downstream to Iron Gate Dam. A new ASAP population was found near the shore of Keno Reservoir in section 23, T39S R8E. This new find suggests that more searching is perhaps warranted along the floodplain from Lake Ewauna to Keno.

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Applegate's milk-vetch (Astragalus applegatei)	1	1.13	Acquire landowner permission.	Ongoing Current	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Acquisition	Contract	Permission was obtained from ODFW, USFWS, and BLM to do surveys on public lands.

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Applegate's milk-vetch (Astragalus applegatei)	1	1.14	Conduct inventories.	Ongoing Current	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Research: Population Assessment	Contract, Internal Administrative, Internal Field Assistance, Volunteer	In 1999 and 2000 ODA did some searching for ASAP throughout its known range. The survey was limited to public lands. A small population was found on the west side of Washburn Way where the railroad crosses the road across from AquaGlas. This site covers <1 acre and consists of about 100 mature plants located on both the north and south sides of the railroad tracks. An additional population was found in 2003 by consultants working for PacifiCorp. The new population was found near the shore of Keno Reservoir in S23 T 39S R8E. These new discoveries indicate that more searching could locate additional populations. In 2007 and 2008 additional searches were done and substantial new populations were found at Collins Products and the Klamath Falls airport. In 2008 we did a census of known sites and found a total of 30,000 mature plants. The largest populations were at the airport (20,000) and Collins Products (10,000). In 2009 a new site was discovered near the west shore of Lake Ewauna in the Greensprings area of Klamath

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										Falls. 600 plants were found in two patches. Not all of the area has been surveyed.
Applegate's milk-vetch (Astragalus applegatei)	1	1.2	Inventory for introduced population establishment sites.	Ongoing Not Current	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Research: Reintroduction	Contract	See comments on 1.1
Applegate's milk-vetch (Astragalus applegatei)	1	1.3	Select population preservation and establishment sites.	Ongoing Not Current	FY 2000 - FY 2004		Oregon Department of Fish and Wildlife, Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: Planning	Contract	In 2001 the Service, ODA, and ODFW met and decided to try and establish a new ASAP population on Miller Island Wildlife Management Area. Those efforts were unsuccessful for unknown reasons. Continued efforts are planned once more plants are available.
Applegate's milk-vetch (Astragalus applegatei)	1	1.41	Acquire habitat.	Not Started			U.S. Fish and Wildlife Service, The Nature Conservancy	Acquisition: General	Contract	
Applegate's milk-vetch (Astragalus applegatei)	1	1.42	Delineate boundaries.	Ongoing Current	FY 2007		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Acquisition: General	Contract	All known ASAP sites have been delineated.
Applegate's milk-vetch (Astragalus applegatei)	1	1.51	Collect seeds.	Ongoing Current	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: Reintroduction	Contract	Seed collection has occurred multiple times since about 2000 with most recent collection in 2008. Seeds have been collected for propagation purposes and for longer-term storage at Berry Botanic Garden in Portland.

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Applegate's milk-vetch (Astragalus applegatei)	1	1.52	Propagation.	Planned	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: Propagation	Contract	Propagation was initiated in 2000-2001 by Oregon Department of Agriculture at Oregon State University. Plants were successfully raised to flowering size. Potting mixes contained soil collected from around the roots of wild plants to ensure the soil contained nitrogen-fixing mycorrhizal fungi and Rhizobium bacteria. This technique has proved effective and in 2002, 170 day-old plants were out-planted. More propagation by ODA was funded in 2005. Those efforts were unsuccessful because of damp off disease, so new efforts were made in 2011 in Klamath Falls.
Applegate's milk-vetch (Astragalus applegatei)	1	1.53	Prepare sites.	Ongoing Not Current	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: Propagation	Contract	In 2002 when propagated plants were planted at Miller Island the site chosen has sparse ground cover so little preparation was needed. More preparation will likely be required on sites where ground-cover is greater.

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Applegate's milk-vetch (Astragalus applegatei)	1	1.54	Population establishment (outplanting).	Planned	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: Propagation	Contract	The first outplanting occurred in January 2002 when 224, 170-day old plants were planted at Miller Island WMA. Follow-up monitoring showed that mortality was high owing to herbivory and possibly water stress from drought. Additional outplanting will likely occur in 2006 or 2007. No site has been selected but it could be Miller Island. No outplanting was done in 2006 or 2007 because no additional plants were propagated. Based on on-going efforts to propagate the plants, the earliest time for outplanting would be in 2013.
Applegate's milk-vetch (Astragalus applegatei)	1	1.61	Determine management needs.	Ongoing Current	FY 2000 - FY 2004		Oregon Department of Fish and Wildlife, Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management	Internal Administrative	Work began on this action with the initiation of the 5-year review. The review was completed in 2009. In July 2009 a recovery meeting was held at the TNC office in Medford. From that meeting it was determined that we need to begin experimentally assessing the status of weeds that are a threat to ASAP and experiment with control methods for weeds. No further work has been done on this issue.

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Applegate's milk-vetch (Astragalus applegatei)	1	1.62	Develop written management plans.	Ongoing Current	FY 2007		Oregon Department of Fish and Wildlife, Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: General	Internal Administrative	Work began on this action with the initiation of the 5-year review. TNC is now working on management plans. A new plan might be available in 2011.
Applegate's milk-vetch (Astragalus applegatei)	1	1.63	Implement management actions.	Ongoing Current	FY 2007		Oregon Department of Fish and Wildlife, Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: General	Contract	Management actions currently underway by TNC at Ewauna Flat and ODA at Miller Island. In 2009, three cattle exclosures were installed around the major ASAP sites at Collins. This will reduce herbivory threat. In a brief examination within one exclosure in 2009, many seedlings were seen.
Applegate's milk-vetch (Astragalus applegatei)	1	1.71	Population census.	Ongoing Current	FY 1995 - FY 1999		Oregon Department of Fish and Wildlife, Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Research: Demographic Studies	Contract	TNC has been doing irregular monitoring of the Lake Ewauna Flats preserve population since about 1998. The most recent monitoring was in 2007. TNC noted that they found seedlings in 2006. In 2008 a complete census was made at ASAP sites at the airport, Collins Products, Worden, and Miller Island. As a result it was determined that the approximate population size is 30,000 mature plants.

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Applegate's milk-vetch (Astragalus applegatei)	1	1.72	Demographic monitoring.	Ongoing Current	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Research: Demographic Studies	Graduate Student	TNC has been conducting demographic monitoring on the Ewauna Flats Preserve for about 10 years. Additional demographic monitoring is being done in macroplots at the airport and Collins site. Final reports on these studies should be available in 2011.
Applegate's milk-vetch (Astragalus applegatei)	1	1.73	Assess augmentation needs.	Not Started			Oregon Department of Fish and Wildlife, Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: Propagation	Internal Administrative	To begin implementation in FY2003
Applegate's milk-vetch (Astragalus applegatei)	1	1.8	Augment populations (if necessary).	Not Started			Oregon Department of Fish and Wildlife, Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: Propagation	Contract	

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Applegate's milk-vetch (Astragalus applegatei)	2	2.1	Collect seeds.	Ongoing Current	FY 2000 - FY 2004		Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: Propagation	Contract	In August 2002 ODA staff collected over 6,000 ASAP seeds from 45 plants from the Washburn Way - railroad crossing site. The seeds are banked at Berry Botanic Garden in Portland. No germination tests have been done to our knowledge. Since the banked seeds have come from only one population it would be advisable to collect seeds from additional populations for banking. In 2008, large numbers of seeds were collected at the washburn Way site and at Miller Island.
Applegate's milk-vetch (Astragalus applegatei)	2	2.2	Store and test seeds.	Ongoing Current	FY 2000 - FY 2004		Oregon Department of Agriculture, Berry Botanic Garden, U.S. Fish and Wildlife Service	Management: Propagation	Contract	Seeds collected by ODA in 2002 are banked at Berry Botanic Garden. No germination testing has been done to our knowledge.
Applegate's milk-vetch (Astragalus applegatei)	3	3.1	Define population self-sustainability.	Planned			Oregon Department of Agriculture, Berry Botanic Garden, U.S. Fish and Wildlife Service, The Nature Conservancy	Research: Management Techniques	Contract	To be implemented in FY2009. The recovery team met in July 2009 to discuss new criteria. It was decided that we did not have sufficient information with which to develop new criteria. However, there was agreement that the criteria should be based on new information about populations and on demographic information.

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Applegate's milk-vetch (Astragalus applegatei)	3	3.2	Perfect population establishment and augmentation techniques.	Not Started			Oregon Department of Agriculture, U.S. Fish and Wildlife Service	Management: Propagation	Contract	
Applegate's milk-vetch (Astragalus applegatei)	3	3.3	Assess efficacy of habitat management strategies.	Not Started			Oregon Department of Agriculture, U.S. Fish and Wildlife Service, The Nature Conservancy	Management: Planning	Internal Administrative	TNC tested some management techniques for weed control including fire and herbicides, but no method was found to be fully effective.
Applegate's milk-vetch (Astragalus applegatei)	3	3.4	Evaluate edaphic and hydrologic requirements.	Partially Complete	FY 1995 - FY 1999		Oregon Department of Agriculture, U.S. Fish and Wildlife Service	Management: Planning	Contract	In 1998 TNC contracted with a soil scientist to characterize soils at all ASAP sites. A report (Ottersburg 1999. Characterization of Applegate's milkvetch soil and prediction of potentially suitable sites) was developed. NRCS also assisted with soil assessments in 2007 and 2008 but no reports were developed.
Applegate's milk-vetch (Astragalus applegatei)	3	4	Develop and implement an outreach program.	Not Started			Oregon Department of Agriculture, U.S. Fish and Wildlife Service	Other	Internal Administrative	